

CompSoft

Data Management System

DMS (DATA MANAGEMENT SYSTEM)

Compsoft's DMS is the record-keeping program for Commodore Pets PLUS various other computers that have the CP/M operating system.

It allows users to create files, store information, search for and retrieve that information on screen or on the printer, print self-adhesive labels or transfer into the wordprocessing packages, Wordpro and Wordcraft or into Visicalc.

USER REGISTRATION CARD

Please complete and return to Compsoft Ltd, Great Tangle Manor Farm, Womersley, Surrey GU5 0OP immediately you receive your DMS pack. No software support, advice or updates will be given to non-registered users.

COMPANY NAME

DEPT

ADDRESS

USERS NAME

LICENCE NUMBER

DMS will be used for:-

By signing this agreement the Purchaser undertakes that neither he, his staff or company will copy, sell, duplicate or loan any part or parts of the material that comprise the DMS product. The product DMS comprises program disks, manual, security device and accompanying documentation. Copies of the disk may be taken for backup purposes only. DMS is licenced for use on one machine only.

Signed:

Date:

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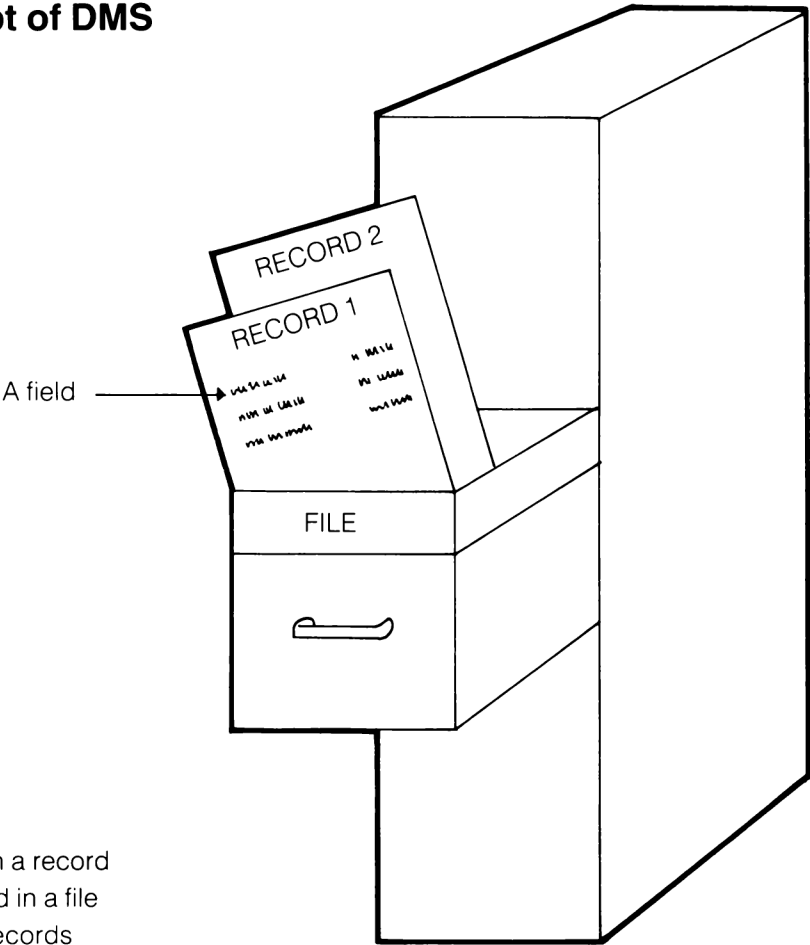
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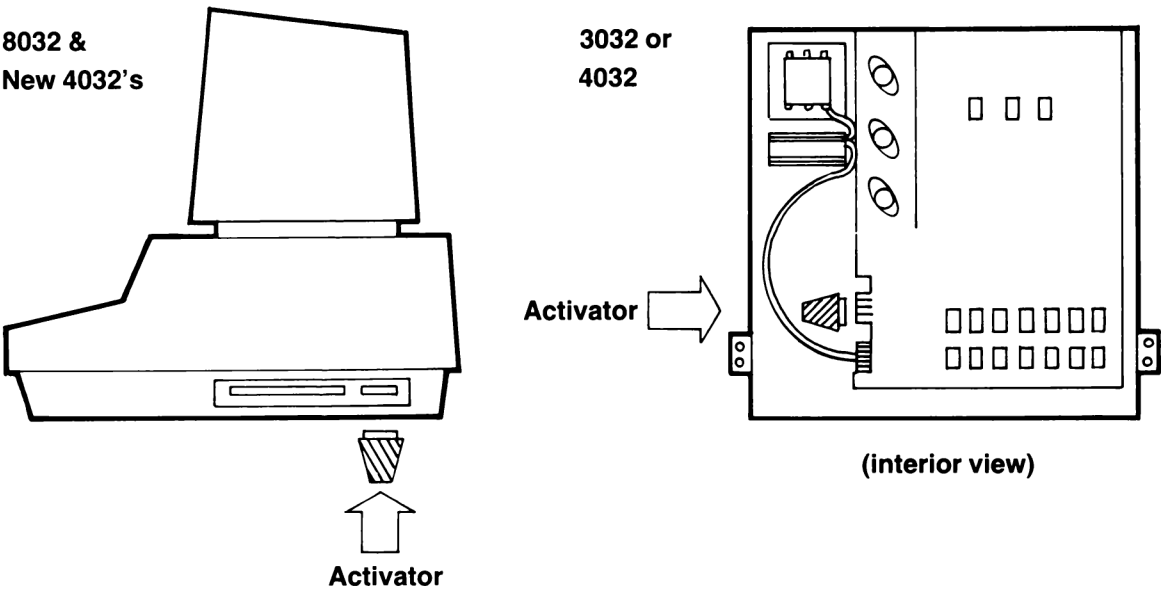
Diagram 1.



A field is a line on a record
A record is a card in a file
A file is a set of records

Placing the DMS Activator.

Diagram 2.



SECTION 1 – AN INTRODUCTION TO DMS

THE CONCEPT

1.1 DMS (Data Management System) is the modern way to store records. No programming is required, and you'll find DMS an ideal introduction to micro-computers. All instructions, both on screen and in the manual, are in everyday, conversational english.

The concept of DMS is simple. It acts as a very sophisticated computerised filing cabinet. In the old-fashioned manual filing system there was a card for each record kept there. By using DMS record 'cards' are still kept, but this time they are stored on disk instead of in a drawer in the filing cabinet. You will design the layout of the 'cards', in much the same way as you would do if you were sending a box of blank cards to the printers to have the headings printed on, but DMS will write these headings all over your blank data disk. Then you fill in the records. From this point onwards the speed, efficiency and powers of the Commodore Pet take over, allowing you to find records almost instantaneously, print lists of records which meet various parameters, perform calculations on thousands of records at a time, transfer information into standard letters, etc., etc. The benefits in time and effort are tremendous. Tasks that prior to computerisation were too time-consuming to contemplate now take minutes. In the words of one DMS user 'I'd as soon go back to quill and parchment after using my wordprocessor as return to manual record keeping after using DMS'.

THE AIM

1.2 The aim of DMS is to make feasible tasks that were time-consuming and to speed up dull routine and repetitive tasks. DMS is the assistant of both clerical and management staff, by producing essential information quickly and efficiently, and allowing the user to act upon that information, usually via DMS, in a number of cost-beneficial ways.

THE APPLICATIONS

1.3 The applications of DMS are vast and various. Because of the flexibility of DMS it has been put to such varied uses as personnel records, student records, stock records, sales records, client records, mailing lists, jobcostings, library records, etc., etc. Some of the more unusual tasks that DMS tackles include parrot breeding records, man-hole cover records, and dating agency lists. DMS lends itself very well to handling unusual record management applications, and is very often used instead of dedicated programs because of its superior power and flexibility.

SECTION 2 – FAMILIARISATION WITH DMS

2.1 CHECKLIST

You'll need:-

1. A 32K Pet, either series 4032 or 8032. There is a version for the 3000 Pet, but this differs slightly.
2. A 4040 or 8050 disc drive.
3. A printer. This is optional. DMS will work without a printer but of course no printouts may be taken.
4. A DMS disk that matches your hardware. The label on your disk indicates the configuration of hardware that your particular DMS will run on.
5. A DMS Activator or 'dongle'. Put it on the second cassette port, label up, as shown in diagram 2.

2.2 STARTING UP ON DMS

1. Having put the dongle in place as described, switch on your Pet, disc drives and printer.
2. Insert the DMS disk in drive 0 and a blank disk in drive 1.
3. Press the Run/Stop key while holding the shift key down. This is the normal method of loading programs on Commodore Pets and will give you the DMS menu of options. For a full description of cursor commands see Section 3.2.

2.3 MAKING A BACKUP OF THE DMS MASTER DISK.

It is essential to make a copy of the DMS program disk before using the program, as all floppy disks have a limited life. To do this press option 'P' on the menu and you will see several options displayed. Select option 'B' for backup and DMS will then copy the DMS program onto the blank disk. When the backup is finished press the RUN/STOP key to return to the menu. By working through the following example you'll learn the basics of DMS. It is **ESSENTIAL** to work through the example before going 'live'. Use the instructions on screen to help you, plus this manual.

SECTION 3 – TRAINING EXAMPLE FOR DMS USERS

If things don't go exactly as they should while working through the example refer to the relevant chapter headings for full explanations.

FORMATTING THE DISK

3.1 The first thing that you need to do is to format the blank disk in drive 1 to receive DMS information. Press option 'P' for 'UTILITIES' on the DMS menu.

Four options appear on screen. You need option 'F' to Format a new disk. Disk formatting starts as soon as you press the '↑' key on your keyboard. Formatting takes a couple of minutes and you'll know when the disk is ready by the disk drives stopping and the screen returning to the original four options. You may now exit from the 'UTILITIES' option by pressing the RUN/STOP key.

CURSOR COMMANDS

3.2 Now let's look briefly at the important cursor commands in DMS. The 'CRSR' key with the arrows pointing upwards and downwards can be used to move the cursor backwards and forwards and up and down through the fields. The 'CRSR' key with horizontal arrows can be used to move the cursor forwards and backwards within the field. The 'INST DEL' key is used for deletion, and the space bar overwrites information with a blank space. The RUN/STOP key is the 'get out' key and will eventually return you to the menu. The OFF/RVS key allows you to either PRINT whatever is on screen, or have a look at the file definition. The SHIFT and RETURN keys together are used to a) go to the bottom of the screen from mid-way through it. b) confirm a screen having got to the bottom.

PRINTER AND DISK DRIVE CONFIGURATIONS

3.3 You should now be back at the menu again, ready to configure DMS to your printer. This has to be done once only, unless of course you change your printer. So press option A for configure.

You are offered four opportunities to indicate to DMS which printer you're using. If your printer is standard Commodore 8000 then you can simply press return throughout, which moves the cursor down through the brackets (you'll see it positioned in the first bracket when you first access the 'CONFIGURE' program). After the cursor has been taken through the text hold the SHIFT key down and keeping it down, hit RETURN to accept the screen.

If your printer is not a Commodore printer then press 'A' to replace the information in the first bracket. This tells DMS to work with an Ascii printer such as the Qume, Ricoh, NEC, etc. Normally your paper width will be 132 characters, but if you have an 80 character wide printer then replace the '132' in the second brackets by typing over the top '80' and pressing the space bar to delete the '2'.

If your printer is Commodore 4022/3022/2022 then press 'M' for the printer type.

Paper length is almost always 66 lines in Britain, so there should be no need to change any of the information in the third set of brackets. Ask your paper supplier if in doubt.

If you are using a 4040 disc drive with your 8032 Pet then you will need to retype over the last bracket, to insert '4040' instead of '8050'.

Having worked through this configuration routine once there is no need to use it again unless your hardware changes.

Press SHIFT and RETURN as before to accept the screen and move on to the next stage.

3.4 CREATING YOUR FILE IN DMS

Now we're ready to create a file. This is the equivalent to sending a lot of blank cards to the printers to have headings printed on them.

Section 3 – Training Example for DMS Users

Although the following example will probably bear little or no relation to your own application working through the example is an ESSENTIAL training exercise.

1. Press option 'B' on the menu. You'll see on screen a mass of brackets. The wide brackets under 'Field Name' are laid out ready to accept the field (or line) headings, the brackets under 'Type' are there to tell DMS whether the information you're going to store is character, arithmetic or date information, and the brackets under 'Length' to tell DMS how long you anticipate the fields being.

DON'T WORRY IF YOU DIDN'T FOLLOW AT THIS POINT. Simply carry on through the following instructions and the concept will become clear.

2. You'll see the cursor waiting for instructions under the line 'Field Name'. Type in the word 'COMPANY' for field 1 and press the RETURN key. Remember that if the instructions use upper case, then you should do too. The cursor is now waiting in the 'Type' brackets. The Company name will, of course, be in character (alpha) form, so press 'c' here and then the RETURN key.

The cursor is now waiting for instructions on how long you want the 'COMPANY' field to be. Type in '30' and press return. Now fill in the instructions for field 2 of the record. This can be the company address, so type in ADDRESS 1, and hit RETURN, 'c' for character information in the 'Type' column, (hit RETURN) and '25' for length, (hit RETURN). Repeat this procedure to include ADDRESS 2, c, 25 and ADDRESS 3, c, 25.

In line 5 we'll keep the Company grade, so type into the appropriate columns 'GRADE', 'c', '2'. (Company grades can easily be coded into a series of single character symbols, e.g. A to F or 1 to 10 etc., but each DMS field must be at least 2 characters long.

Note also that at least 2 fields must be specified or the file will not be created.

Now let's put some arithmetic information lines in. Our hypothetical companies list might keep information about the level of discount given, so in field 6 type in 'DISCOUNT' (RETURN). For 'Type', type in '0' (zero), which means that we don't need to use any decimal points. We will use a length of 6. In field 7, we'll keep a field called 'P DATE' which is the last purchase date by the company. Here the type is 'd' for date and the length 6 (it will work in the format of two digits for day, two for month number and two for year e.g. 251281 for Christmas Day).

We could carry on and fill up the 40 fields with information about the company but for training purposes let's stick with 7 fields. To record this file definition on disk press the SHIFT key, hold it down and press the RETURN key at the same time. You are then asked to press the SHIFT and RETURN keys again and on this second request DMS will pause for a moment then ask you for a file name. Type in COMPANIES and hit return. The cursor is now waiting to accept the command to tell DMS how many records you wish to keep. Type in 500 and delete any remaining characters by pressing the space bar once.

You will be asked whether you want to give the file a password. Reply N here (see the section on Passwords for an explanation of this).

Use SHIFT and RETURN twice to move on to the next stage. i.e. back to the main menu.

3.5 PUTTING RECORDS IN

Now let's put some records on to the file we have just created.

1. Press option 'C' on the menu. You will be shown the files available, which in our case is COMPANIES. The cursor is waiting to receive today's date which must be entered in day month and year format, using 6 digits e.g. 121281 for the 12th December 1981. Now press RETURN. The DMS file number that we want to use is naturally file No 1, so type in '1' and press RETURN. Now press SHIFT and RETURN to accept the screen.

DMS will show the layout of the file selected – press any key to go into the 'C' option.

Section 3 – Training Example for DMS Users

2. Your next question is 'Do you want to use a screen mask? Y or N'. Hit the 'N' key because we haven't as yet covered masks (this gives you special screen layouts and is more complicated so don't worry about it at this stage. You will also be asked to reply Y or N to whether you want Transactions printed out. Reply Y and as you type records in, amend them or delete them, the key field (first line) will be printed out on the printer.

3. Now we're ready to type in records. The cursor is waiting in the brackets for instructions on the company name. Type in Bloggs Ltd, using exactly the same capitals and lower case as here and hit RETURN. DMS now searches across the disk to see if it already has a record called 'Bloggs Ltd' and not finding one asks if you would like to create a record.

4. Now press Y to say that you would like to create the 'Bloggs Ltd' record. Now you can fill the rest of the record up as follows, pressing RETURN after each field. You will notice that the date field already has the current date inserted (121281) i.e. the date given as you started to use DMS. This is automatically inserted but is typed over if inappropriate, as it is in this case. So when the cursor arrives at the P DATE field ignore the fact that there is already a date there and just type over it.

ADDRESS 1	11, Church Lane
ADDRESS 2	Woking
ADDRESS 3	Surrey
GRADE	A
DISCOUNT	10
P DATE	150480

then press SHIFT and RETURN to accept the screen, and IGNORE THE OPTIONS SHOWN. Simply press the RUN/STOP key to go on to the next record.

5. This is our second record. Type into the appropriate fields:-

COMPANY	Commodore Ltd
ADDRESS 1	818, Leigh Rd
ADDRESS 2	The Trading Estate
ADDRESS 3	Slough
GRADE	A
DISCOUNT	4
P DATE	130281

Press SHIFT and RETURN to accept the screen and move on to the next record by pressing the RUN/STOP key.

6. This is our third record. Type in the appropriate fields:-

COMPANY	Compsoft Ltd
ADDRESS 1	Wonersh
ADDRESS 2	Surrey
ADDRESS 3	England
GRADE	B
DISCOUNT	6
P DATE	121281

Press SHIFT and RETURN to accept the Screen. Now press RUN/STOP.

Congratulations, we now have three records on our file. If you want to put more on, please do, as this will not affect the rest of the training exercise.

3.6 RECALLING RECORDS

The cursor is now poised as if waiting for the input of another record. Type in 'Bloggs Ltd' and press RETURN. You should almost instantaneously see the full record on screen, with the option to amend it, save it, delete it, print it, or go on to the second screen full of information (for very long records only.)

Section 3 – Training Example for DMS Users

If you DIDN'T get the record back but were asked if you wanted to create a record Y or N, answer N and retype it in again, making sure that each letter and space matches exactly with the original input of Bloggs Ltd.

The same part of the program that allows you to key in new records also allows you to see those records, providing you can match up the actual contents of the key field exactly. Recall of records by the key field is naturally for individual records only.

3.7 AMENDING A RECORD

Press 'a' for the amend option. First practice moving the cursor up and down through the record using the upwards and downwards arrows CRSR key, and sideways through the fields using the forwards and backwards arrows CRSR key. When you feel confident take the cursor down to the DISCOUNT field and type in 12, then SHIFT and RETURN twice to make the amendment. The 10 that was there previously disappears and is replaced by 12. Go back in to amend again and practice making several amendments. **None of these will be recorded unless you press 's' for save.** Don't do this as we will need the records in their original form later.

3.8 PRINTING

Press 'p' to print the record 'Bloggs Ltd'.

3.9 CALCULATIONS

Press 'c' for Calculate.

The only arithmetic field we have is DISCOUNT so move the cursor down to that field and press the + key. You are asked to enter the value to be added so type in '5', press RETURN and your discount field will read 15. Continue to calculate and leave whatever figure you wish. **This will not be recorded until you press 's' for save,** (we'll come on to this later). Do not save your calculations at this stage.

When you are satisfied that you can amend and calculate on Bloggs Ltd press the RUN/STOP key and return to the part of the program where you can either type in new records or recall existing ones. This time type in Compsoft Ltd and amend and calculate etc., practice adding records, recalling records, etc. If you get stuck at any point you can press the RUN/STOP key to go back to the start and work through the process again. Keep running through this routine until you feel confident, then press RUN/STOP and return to the menu.

CONGRATULATIONS on having mastered the basics of DMS. You have created a file, put records in, recalled and amended them. Lets move on to the second stage of learning DMS.

3.10 SEQUENTIAL SEARCHING IN DMS.

This is the other main and fundamental part of DMS that everyone will use. In laymans terms this is the 'if it's this, that and the other' searching. We'll start by finding all our companies which fall into the Grade A category.

This means that we need to use the 'SELECT' program so press E on the menu.

3.11 SEQUENTIAL SEARCHING EXAMPLE 1

The first thing you're asked to do is to name the file; lets call it 'FRED'. Type in FRED and hit RETURN and you'll find yourself confronted by a bewildering array of brackets. DONT PANIC. The cursor is waiting in field 1 to receive instructions as to which line we're going to search on. As we're searching for all the companies in Grade A we'll obviously have to ask DMS to look along the 'Grade' field for anyone who has Grade A.

So type in against search line 1 'GRADE' and hit return. Under 'Oper' (meaning operation code) type in 'eq' (for equal to) and hit RETURN. Under 'start' type in '1'. This means start the search in position 1 on the line, i.e. the first (and in this case only character). The length of the line is also '1'. Type in '1' and hit RETURN. Under 'Comparison 1' type in '#A#' to indicate that we want to find all those with an A in the GRADE field. The # symbol indicates that A is a constant, as opposed to

Section 3 – Training Example for DMS Users

another field and should be typed in before and after the 'A' to make the start and end of the constant (for use in Type 'c' fields). Just hit RETURN for Comparison 2.

Lets sum up. We have asked DMS to look along the field called GRADE for any information equal to A. this search is to take place starting at the first character position in the line and is one character long.

Now press SHIFT and RETURN to accept the screen and you will be told that the SELECT file called FRED is complete. This group of selected records (all those with grade A, now selected is now in a file called FRED) can be recalled in a number of other programs e.g. the REPORT program if you want a printed list, or in the SCREEN program for a screen display of those records, or in LABELS for printing onto self-adhesive labels etc., etc. We'll go through the recall of this file later on, but before we do this let's look at more complicated sequential searching. Sequential searching is one of the DMS programs which you can regard as a 'non-action' part of the program in that the results of the search are not visible or apparent until the 'sub-file' of selected records is recalled for use in one of the 'action' parts of DMS, eg. REPORT, LABELS, PROCESS etc.

3.12 SEQUENTIAL SEARCHING EXAMPLE 2

Let's start again from scratch and make the search parameters more specific. Press RUN/STOP until you're back at the menu, reselect option E. FRED is already there and you could recall this select file for amendment and add on more selection parameters, but in the interests of learning lets create a new one called SHIRLEY. Type in SHIRLEY and hit RETURN.

This time lets search for all those in GRADE A whose discount is greater than 5 and is a limited company.

Type in GRADE (RETURN) eq (RETURN), 1, (RETURN), 1, (RETURN, #A# (RETURN) (RETURN).

The cursor is now waiting in Field 2 for the next search parameter. Type in DISCOUNT (RETURN), gt, (for greater than) (RETURN) 1, (RETURN) and 6 for the length, with #5 for Comparison 1 (RETURN) (RETURN).

Now the cursor is waiting for our third and final search parameter which is for Limited companies. This information is in Field 1, so type in COMPANY (RETURN), ss, (RETURN), 1, (RETURN), 30, (RETURN), #Ltd#, (RETURN). You will notice the strange command 'ss' for operation in this last instruction. This means that we're going to do a 'sliding string' search or 'window' search for any company name with 'Ltd' in it. Imagine a piece of paper with a small window hole cut in it being slid along each line of this page. Several characters will be visible at a time. When you ask DMS to do an 'ss' search in effect a 'window' allows the computer to read along the whole line but pick out records for selection on various PARTS of the field e.g. in this case any record with the three constants 'Ltd' anywhere in that line.

You are then asked to decide whether you want to have these records selected if ANY one of the parameters is met (i.e. if the DISCOUNT is greater than 5, OR the COMPANY is in GRADE A, OR the company is a Ltd company.) Lets answer 'A' to indicate that not every parameter needs to be met, and that ANY one will do. We could have answered 'E' for 'every', requesting DMS to find the records only if they met EVERY one of the search parameters. We could have been even more specific by asking for the full connectors option which will be dealt with in the sequential searching chapter.

DMS then goes ahead and creates the SELECT-file 'SHIRLEY', which we can recall for use in other programs. Return to the menu using the RUN/STOP key to continue the training program. We will return to 'SHIRLEY' later and take a print out of these records during training in the REPORT program.

Section 3 – Training Example for DMS Users

3.13 SORTING RECORDS

SORT is used to get the records on file to either print out or display on screen in a particular order e.g. alphabetic or numeric order.

It's a very easy program to use so let's include this in our training example.

Access SORT by pressing option D on the menu. You can sort on up to three fields at a time but let's keep it simple by just putting our records into Company name order.

Firstly, we will give our sorted file a name so that we can recall it later. Type in HENRY (RETURN). Now type in 'COMPANY' under sort field 1 and hit RETURN, then type in '1' for the start position i.e. at the first character in the field) and 2 for the length (i.e. only regard the first two characters of the Company name as valid for the sort e.g. AA, ABV, AC, AD, etc. Sorting on multiple keys will be dealt with under the relevant chapter on SORT., so press SHIFT and RETURN to continue.

You could now ask DMS to sort a pre-selected file. (we have one called FRED or another called SHIRLEY), or to sort the whole file. Say 'N' to using a selection file here. DMS then goes ahead and creates a sorted file which we can recall in REPORT for printing out.

3.14 PRINTING OUT THE EXAMPLE FILE

You have been able to print out individual records, by recalling each record by company name in the KEY program. This involves sitting with the machine and recalling each record in turn. If however you wanted a full list of the records on file you would use option H REPORT.

From the menu, access REPORT by pressing the H key. You will be shown the file definition. Press any key to continue.

Several options are available which will be dealt with in SECTION 10 REPORT. For the moment we will use option E, for standard report printing. Press E and you will be shown your file definition. Against each field there is a 'n' in brackets. You can specify which fields you want to print out by changing any of the 'n's to 'y', indicating that you want those fields to print out. Change all the fields to 'y' which will give us a full print out. Press SHIFT and RETURN to move on.

You are then asked whether you want to use a sorted file (we have one called 'HENRY'). Answer 'y' and insert the name HENRY as requested and the records will be printed out in company name alphabetic order.

Now you are asked to reply Y or N to the use of a SELECT file. We have SELECT files called FRED and SHIRLEY. Answer N to the use of a SELECT file. With only three records on file, and having done various amendments etc, there may be no records meeting the specified parameters!

You may then specify whether you want to have only totals printed out. Answer N, because we want to see the full record.

Your final question before printing out wants a Y or N answer to whether you want the records seen on screen or printed. Answer P for printed. Your printer now moves to the top of the page (assuming you set it first) and prints the records in standard format.

If for any reason the printout is incorrect, reconfigure the printer in option A on the menu, or consult your hardware supplier regarding interfaces.

MAIN USER GUIDE

SECTION 4 – CREATE

4.1 Create is the part of the DMS suite that allows users to create their own files. Assuming that you have worked through the example, we can now look in more detail at this very important part of the program.

4.2 You can create files of up to 40 fields (lines of information), with up to 1016 characters in each record. Each character field can be up to 254 characters in length, while each arithmetic field can be up to 10 digits, and each date field need not be more than 6 characters. The number of records per file depends on how long you want each record to be. Use the table below for guidance on how many records you're likely to be able to keep per file. Remember that this table refers to the MAXIMUM number of records allowable, and only if no other files are held on that disk.

TABLE 1

On the 8050 drives:-

	APPROX
Using 60 characters per record	7500
Using 120 characters per record	3750
Using 250 characters per record	1875
Using 500 characters per record	950
Using 1000 characters per record	450

On the 4040 drives:-

Using 60 characters per record	2500
Using 120 characters per record	1250
Using 250 characters per record	625
Using 500 characters per record	300
Using 1000 characters per record	150

You can keep up to four separate files per data disc.

Naturally, once you have purchased one copy of DMS you can create as many different files and data discs as you wish. Many companies use DMS for such diverse jobs as stock records, mailing lists, client records, sales and personnel records all within one company.

When you create a file definition in DMS you simply type in the field headings (up to 10 characters in length), tell DMS whether you want the information in that field to be stored in character, arithmetic or date form, and how long you want each line to be. Although you don't have to fill up each line with information, you do need to anticipate the longest possible piece of information and allocate length of field on that basis.

4.3 HINTS ON FILE CREATION

4.3.1 The only sure way to know that you have created the file in the ideal way for your own particular application is to produce a file definition that you THINK is right, then type in ten records and put DMS through every possible thing you'd ever like it to do e.g. printing labels, linking with the Wordprocessing package etc., etc. This is the only certain method of getting it right first time. You are VERY strongly urged to take an hour or two to do this. Apart from learning the program, you will also come across a number of unexpected bonus's connected with using a computerised record keeping system that could make DMS doubly useful. But you do need to be well-enough informed at the outset to create the file definition accurately and cleverly.

4.2.2 At the risk of stating the obvious, do remember that DMS can search for and retrieve records on PARTS of a line, e.g. In the case of student records you may have a field called 'Interests', where a typical record might read along the lines of

Section 4 – Create

'Fishing, riding, politics, ecology'

DMS can find all the students who are interested in ecology and/or politics etc., even though this information could be embedded anywhere in a whole list of other words. DMS can retrieve on parts of words, whole words or numbers contained anywhere in a list of information. This feature means that there is no need to allocate separate fields for separate bits of information, except in some cases where the information is numeric.

4.3.3 Arithmetic or numeric fields should be chosen only in cases where you want to

- A. Search for numbers greater than, less than, in a range of an amount.
- B. Use the information for calculation purposes.

This means that there is no need to put telephone numbers etc., in arithmetic fields. No harm comes from doing this but you may end up with some strange totals if you ask DMS to do totalling of arithmetic fields!

If you are keeping arithmetic information to do calculations, remember to allocate fields to hold any of the results that you'd like to keep permanently on disk.

NB. DMS cannot calculate on numbers embedded in character fields so keep to 'pure' numbers, stored in arithmetic fields for calculation purposes.

4.3.4 The most important field to choose carefully is the first (KEY) field. This wants to hold the information that you will use most frequently to recall individual records, e.g., in personnel records this would be the person's name or even code number, or in a stock records file, the stock number, or in a mailing list, the Company name. The information here needs to be as near unique as possible, as in peoples names, stock numbers, book titles, company names etc., as DMS will not allow duplicate key fields. There are a number of easy ways to get past duplicate key fields, which will be covered during the chapter on KEY.

4.3.5 KEEPING NAMES IN DMS

If you intend to use the records to generate letter and address labels it is very important to remember to store the name of the person you're writing to in at least two different ways, in separate fields. e.g., Once in the format of 'Mr J Smith' which is the way you would like the name to appear on a sticky label and again in the format 'Mr Smith', or if you know the person well 'John' which is the way you would want it to appear after the 'Dear' in a personalised letter.

The third possible method of storing the name would be in the format surname followed by christian name, e.g., 'Smith J', should you ever want to sort the records into order on the basis of name. Think over these points carefully. Although you can add fields at any time, it's much quicker to get it right first time. This is possibly the most frequently noted mistake.

There is no benefit from putting title (eg, Mr Mrs Miss) onto another field. Remember DMS can retrieve records on PARTS of fields.

4.3.6 ADDRESS LINES IN DMS

If you want to use the sticky label option to print out labels do put each line of the address onto a separate field as DMS has no way of splitting up one line of information to print onto several lines.

The best way to do this is to call the address fields 'ADDRESS 1, ADDRESS 2, ADDRESS 3' etc., using four address lines if your correspondence is frequently abroad and therefore with longer addresses. If you put the addresses in under a layout along the lines of 'Street', 'Town', and 'County' you will find various gaps occur, wherever there was no data for that particular line, and whoever types them in will be slowed by the time taken to check that the various fields are correct. Many DMS users think that they could not find all those people who lived in a particular town or county unless they use this 'Street, Town, County' format. This is not so. All one has to do is to ask DMS to look along TWO or even THREE fields for that town or county. This does not take any longer and is the method that Compssoft recommends.

4.4 HOW TO CREATE THE FILE.

Having thought out your layout you can now prepare your disk for a genuine file. First of all clear the training example off the disk, by going to option P on the menu (UTILITIES), and using option F which erases any existing data and reformats the disk. Once this is completed return to the menu and access the CREATE part of the program by pressing option B (CREATE).

The array of brackets should be familiar to you. You can use field names or headings up to 10 characters in length, and data can be held in character, date or numeric (arithmetic) format. Insert 'c', 'd', or 'n' as appropriate.

4.4.1 CHARACTER FIELDS.

These can be up to 254 characters in length. Character fields will hold numbers, but cannot calculate on the numbers held there, or do numeric range searching e.g., less than, greater than etc. Parts of fields can be used for recall. If you want to use a character field type in 'c' under 'Type' and allocate the number of characters you anticipate using under 'Length'.

4.4.2 ARITHMETIC OR 'NUMERIC' FIELDS.

These can be up to 10 digits in length. If the numbers can be negative, you will need a space for the minus sign. You will also need one space for a decimal point if you are going to work in decimals. DMS will calculate on up to 2 decimal points. If you are going to do calculations, and use fields for totals, remember to allocate the fields to hold them, and bear in mind that if you are storing totals, these figures will probably be longer than the figures you start working with. There are temporary holding areas for use during the calculation program so not every calculation will need a field on disk.

There is no need to store telephone numbers etc in numeric fields. These should only be used for two reasons:-

1. To hold information for calculation purposes.
2. To allow numeric range searching i.e. to find numbers less than, greater than, in a range of etc.

If you want to use arithmetic fields, simply type in the number of decimal places you wish to work to under the 'Type' column (maximum 2) and allocate the length of the field under 'Length'. If you don't anticipate needing any decimals type in '0' (zero) under type.

4.4.3 DATE FIELDS

Dates can be held in either numeric or character fields, but there is a special date facility which holds dates in the format of two digits for the date, two for the month and two for the year. So Christmas day would read as 251281. By storing in this format, instead of the 12th December 1981, as you would do if you stored the date in a character field, you will be able to search for dates before a date, after a date or between two dates, using either the whole date as the search parameter or just the year, month and year, or day and month as search parameters.

If you want to use this powerful date facility, simply type in 'd' in the type column, and allocate 6 digits per field.

There is a very clever option in the DMS date program which automatically inserts the current date into any date field, (i.e. The date you typed in when starting to use the program). If this date is applicable then you simply press return at the date field during the keying in of records, thus saving typing time. If it's not applicable then type over the top.

4.4.4 COMPLETING THE FILE CREATION

When you have finished allocating fields, press SHIFT and RETURN twice and DMS will record your file definition on disk. This file can be recalled at any time by name. On naming your file you will be asked how many records you anticipate keeping. The maximum number available per disk will be shown on screen. If you anticipate keeping that number, simply press return to accept the screen. If you would rather keep fewer records on that disk and use the surplus space to store further data files, type in the appropriate number. e.g. 500 or 1000 etc.

Section 4 – Create

4.4.5 ALLOCATING A PASSWORD

You can give the data file a password to stop unauthorized access to the information. This must be 8 characters long AND IS NOT ALTERABLE OR VIEWABLE ONCE ENTERED.

Press RUN/STOP to return to the menu.

SECTION 5 – KEY

5.1 This is the part of the program that you will use to put records onto file. Having put records in you may also retrieve them here by putting in an exact match with the original entry. Having found an individual record you may amend the record, print it, delete it, perform a calculation etc. Key handles individual records only. For batch processing see the chapter on SELECT. The standard DMS screen layout is used unless you create and utilise a file 'MASK'. This will be dealt with in Section 7. It is advisable to familiarise yourself with standard screen displays before progressing.

5.2.1 Press C on the menu for 'KEY'. You can choose any of up to the four available files. Now simply type in the current date, in the DMS date format of 6 digit dates (DDMMYY). Then select the file number you want to use. The files, with file number beside them are displayed on screen for guidance.

Press SHIFT and RETURN to accept the screen.

You then have the option to access a file 'MASK', should you require particular screen displays. As many different screen layouts as you wish may be created under the 'MASK' option on the menu, but unless you're working through this manual in reverse order you have yet to create a 'Masked' file! Therefore, answer 'N'. File masking is dealt with under its own chapter heading.

5.2.2 You may also ask for Transaction logging to be switched on. This option allows you to have an automatic printout of details of every record that is added to or deleted from the file, and every record that is amended. Unless you have a very fast printer this will slow down data entry, but it produces very useful hard copy of all transactions.

5.3 You may now key in some records. After the input of the first field, DMS will search across the disk, then almost instantaneously ask whether you want to create a record under that key (if you haven't already got one on file), or it will display the whole record for you on screen ready for amendment, calculation, printing, deletion. Thus duplicate key fields cannot be recorded and no confusion can arise about which record you are handling.

If you want to input duplicate key fields, (as in the case of two people called J Smith), there are several ways of making the information unique. The most obvious is to tag into the key field, something to indicate which J Smith you want to refer to. This can be done by typing in J Smith (Woking), or J Smith (Newcastle) etc. There is always a way round the need for duplicate key fields.

HINTS BEFORE PUTTING THE DATA IN

5.4.1 The most important thing to remember when using DMS is to STANDARDISE YOUR DATA ENTRY techniques. This means that if you're typing names in stick to ONE formula for the key field, otherwise you will not know how to recall a record at a later date. Bear in mind the fact that 'Smith J.' (i.e. with a full stop at the end of the name) will read differently to 'Smith J' (without a full stop). Likewise differences between upper and lower case, spaces or no spaces, etc., will cause the record to be read as a separate record.

2. The data entry on fields other than the key field should also be standardised wherever possible but this is not so crucial as in key field entry.

3. DMS has 'on-screen editing' which means that you can move the cursor anywhere in the record during creation or editing. Use the upwards and downwards arrows key for changing the field and the sideways arrows key for horizontal movement within a field. If typing errors occur they can be quickly corrected.

4. If you have date fields you will find that DMS has automatically inserted the current date i.e. the one you typed in when starting to use the program. If this date is applicable, then simply press return to move on to the correct field. If this automatically inserted date is not correct then type over the top of it.

5. If there is no information to go into a field, press return to move on to the next field.

6. When the record is complete, press SHIFT and RETURN to accept the screen. DMS then writes this record to file. To move onto the next record, hit the RUN/STOP key.

Section 5 – Key

5.5 RECALLING RECORDS BY KEY FIELD INFORMATION.

To recall a record, type in the EXACT contents of the key field. If this matches with the data that is there, the full record will be shown on screen. You now have 5 options available.

5.5.1 To amend the record. Access this option by pressing 'a'. You may now retype over the existing record, changing as much information as possible, EXCEPT for the key field, which cannot be amended. When you have finished the amendments, record the amendments on disk by pressing option 's' for save, and move onto the next record via the RUN/STOP key.

5.5.2 To calculate on a record.

You have the option

- A. to add to the existing data,
- B. subtract from it.
- C. multiply by a constant,
- D. divide by a constant.

Use the symbols +, -, / (for divide) and * (for multiply).

When you have completed your calculations, remember to store the amended records back onto disk, using 's' for save.

5.5.3 DELETING RECORDS.

You can delete individual records via key field access. Simply recall a record as usual, then use option 'd' to delete.

5.5.4 PRINTING RECORDS.

You can print records after key field access by pressing the 'P' option, then return to the next record via RUN/STOP. There is only one print format in KEY. For more sophisticated printing, or printing out lists, use REPORT.

5.5.5 OTHER SCREEN

In the case of long DMS records, two screen fulls of information will be used. Flip from screen to screen by pressing 0 for other screen.

5.5.6 'S' FOR SAVING AMENDMENTS OR CALCULATIONS

None of the amendments or calculations will be saved on disc unless you remember to press 's' to record them on disk.

SECTION 6 – SORT

6.1 This option allows you to sort the records on file into a particular order, either alphabetic, numeric, or date order. e.g. You may want your lists of companies to be printed out in alphabetic order, or in the order of level of discount given, or in the order which people joined the company (date order). SORT does not 'sort records out'. This is done in the SELECT option. Be aware of this potential point of confusion.

SORT is another 'Non-action' part of DMS. You will not see the results of the sort until you recall the sorted file (by the name you will give it) for use in REPORT, SCREEN, LINK, etc.

6.2 Accessing SORT.

Press option 'D' on the menu to access sort.

6.3 Using SORT

You will be offered a table which will allow you to put in three sort fields. Normally you will only use one at a time. To do this type in the field name or number which you want to sort on. Then type in the start position for the sort. This is normally position 1 unless you want DMS to ignore some of the first characters in the field. Now you have to tell DMS how many characters in the field you want to use for the sort.

6.4 Sorting on a numeric or arithmetic field.

There is no need to tell DMS how many characters you need to sort on as it automatically uses the whole field.

6.5 Sorting on a character field.

You can ask DMS to use up to five characters for the sort criteria. By inputting different start positions for the sort, these five characters can come from anywhere in the field.

6.6 Sorting on date fields.

You can use either the whole date for the sort or just parts of, e.g. year, month and year, day and month etc., by asking DMS to start the sort in particular positions in the field, and use differing numbers of characters for the sort length. e.g. if you wanted to sort the records into date order, using only the year, you could ask DMS to start the sort in position 5, and sort on just two characters.

6.7 There are three levels of sort available. If, for instance you wanted to sort by one parameter, but to also have sorted groups within that main sort, and even sorted groups within the sub-group, you may, e.g. In a list of personnel, you may want to sort them alphabetically, but within each alphabetic 'band' have the names sorted into salary level too, and within the salary 'bands' have those sorted into joining date order. This is possible by using the three levels of sort, inputting the sort fields in order of importance. This is a very sophisticated level of sorting, but is extra useful should you wish to have subtotals printed out during the printing of the sorted records in REPORT. By using a file which is sorted on more than one level, you will be able to print out subtotals as well as grand totals using numeric information in the records, e.g., subtotals of salaries by department, plus the overall total of all the salaries.

6.8 Sorting selected records

You may if you wish sort a preselected batch of records. This selected 'sub-file' can be produced in the SELECT option, named, then recalled by name in the sort program. Thus you can sort selected records, just as you will be able to select records from sorted files (see Section 7, SELECT).

6.9 Using sorted files.

By naming the sorted file you will be able to recall that sorted file for use in REPORT, LINK, SCREEN, etc.

Section 6 – Sort

WARNING. As the records are added to the Master file again in random order, new records added since the sort will need to be incorporated. You will need to resort in order to incorporate the new records at the correct place in the file.

6.10 Storing sorted files on disc.

To calculate how much space you have on disk, (the program disk is used to hold sorted files) use the following approximate guide:-

$(\text{Total length of sort keys} + 5) \times \text{number of records to be sorted.}$

Even if you do not have enough space on disc, nothing disastrous will happen. You will be given the opportunity to do the sort again, but this time erase some redundant files from your program disc or use fewer characters for the sort criteria. If you prefer to erase files, use the utilities option, and remember that as sorted files take up most space, these are the most effective ones to erase. You can give your new sorted file the same name as the one you wish to overwrite, and the space will automatically be reused.

SECTION 7 – SELECT (SEQUENTIAL SEARCHING)

7.1 This is a very powerful and important part of DMS. It allows you to 'look at' all the records on file to find which meet various parameters ('if it's this, that or the other searching'). You may search on up to eight different parameters at one pass of the file. In rare circumstances you may want to use more than eight search parameters and this can be done by creating a new data file containing records which have passed the first eight selections, and then searching this (see the chapter on 'LINK').

This is a 'Non-action' part of DMS, in that the results of the searches cannot be seen within the SELECT program. SELECT is used only for setting up the parameters by which you want to select. The selection files i.e. a set of questions to be asked about each record before making use of it, can be recalled by the name for use in various other programs in DMS, e.g., selected records may be merged with standard letters either using 'REPORT' or 'LINK', or may be passed through the calculation program, on into SCREEN for screen display etc., etc., 'SELECT' can be thought of as a 'non-action' part of DMS in that the results of the search are only available through other programs in DMS.

7.2 Access this part of the program by pressing option E on the menu. You will then be asked for a name to give to the selection file to recall it by later on. If you type in the name of an existing file, that selection file will be called in for you to amend.

To tell DMS which fields the information you're looking for is in, you need to type in the field name or number in the first column. Type in the field name and hit RETURN. Now you have to tell DMS what your 'operator' is.

The following are available:-

When searching in the sequential part of DMS use the following codes.

A. 'EQ', for equal to.

B. 'NE', for not equal to.

C. 'RN' for range searching – i.e. all records between particular character or numeric constants. This is where the second 'Comparison' comes in, in that the 'Comparisons' hold the upper and lower ranges by which you want to search. Simply put the lower limit of your search parameter in 'Comparison 1', and your upper limit in 'Comparison 2'.

D. 'SS' for sliding string searching. This is sometimes called 'window searching'. You can imagine a piece of paper with a hole cut in that slides along the line of information; only certain characters are visible at any one time. For example you would use the 'ss' option if you wanted to find all the students for instance, who learn french, when the word 'french' could occur anywhere in a list of information in a field. THIS OPTION CAN ONLY BE USED ON CHARACTER OR DATE FIELDS. NUMERIC FIELDS ARE ALWAYS TREATED AS A WHOLE.

E. 'GL'. This option does global searching in much the same way as a wordprocessor has global searching. If you ask DMS to do a global search it will find those records with that information ANYWHERE in the record. You do not need to specify which field you want to search on, as DMS will search on every field within the record for that information. This makes global searching a very powerful facility.

Simply leave the Field name column blank (just press RETURN) and type in 'GL' in the ^{Op} 'Type' field.

E. 'LE' for numbers less than an amount

F. 'GT' for numbers greater than an amount

It is important to note that when you are comparing against a constant, as opposed to a comparison against another field, to note that a '#' symbol must be inserted in front of, and after the constant.

See example below in Section 7.7.

Section 7 – Select (Sequential Searching)

7.4 When searching on date fields:-

You have the full range of options here. This means that you can search for dates before a date, after a date or dates between two dates. As well as searching on full dates, DMS can search on parts of dates, e.g., years, years plus months, days and months. In order to do partial field date searching, simply tell DMS to start the search in the particular position in a field where the relevant information occurs. e.g., If you want to find everyone who joined in a particular year, because the year occurs in the 5th and 6th positions in a field you will need to ask DMS to look only in these positions. Therefore the search start position would be 5 and the Length would be only 2 characters. Date range searching is available using the 'LT', 'GT' etc., described above.

Having told DMS which field you're using for a search field, input the type of searching you want to do under 'Type', using the operators described above.

7.5 Searching start position

Then DMS wants to know the start position in the line to start searching on. Normally this will be position 1, (i.e., the first character in the field), but if you had information in the first parts of the line that you wanted DMS to ignore then you can ask DMS to start the search in a position further along the field. If the field is an arithmetic (numeric) field, then leave the start position blank as this is always treated as a whole.

7.6 Length.

DMS then wants to know how many characters you want to use for the search parameter. Normally this would be the full length of the field, but if you wanted DMS to ignore parts of the field, then you could ask it to start the search in position 1, for example, and only look at the first 3 or 6 characters. Or start the search in position 5 and look at only the next 2 characters.

If the field is numeric leave the length blank as numeric fields are always treated as a whole.

NB When using constants you must surround the constant with a # symbol, e.g., #Fred#. If you are using another field as a comparison, simply type the field name or number in under 'Comparison 1.'

Thus a typical search sequence on a file which holds student records may look as follows.

7.7 Sequential searching example.

NB If at any time you prefer to put in just the field number, as opposed to typing in the field name in full, you may do.

Field	Oper	Start	Length	Comparison 1	Comparison 2
COURSE	eq	1	6	#French#	
FEES	rn			#50.50#	#65.50#
FEE DUE	d	3	4	#1281	
PAID YN	eq	1	1	#N#	

This would involve DMS finding all the students on the French course whose fees were in the range of £50.50 to £65.50, whose fees were due in December 81 and who had not, as yet paid. This type of very useful file can then be named and perhaps recalled in REPORT to send reminders.

Comparisons within the record.

There are several situations where you may want to compare one field of information with another e.g., in a stock file you may want to find all those products where the 'IN STOCK' level is below the 'MIN STOCK' level. In these cases, simply leave out the # symbol before inputting your Comparison.

Section 7 – Select (Sequential Searching)

7.8 Concluding the search parameters with 'ANY' or 'EVERY' connectors.

The most difficult concept you will be asked to grasp in order to use DMS to the full is the concept of joining the search parameters with 'And' or 'Or', connectors. You may at different times wish to input several parameters and find records which meet ANY of them. This is indicated by the use of 'A' for any. If you only wanted to find the records if they met EVERY parameter, you can conclude the search parameters with 'E'. For fuller powers using these connectors, go for option 'C' where you can fill in the boxes indicating which parameters must be met, joining each pair of search parameters to the next with 'AND' or 'OR'.

Sequential 'sub' files can be recalled for use in REPORT, SCREEN, PROCESS, LINK, COPY, SORT, etc.

7.9 Amending existing SELECT files.

This can be done by returning to the 'SELECT' option on the menu, recalling the existing file by name, and changing any of the selection parameters, adding new ones, or deleting redundant ones. The amended file will be stored back onto disk with the same name.

SECTION 8 – REDEFINE

8.1 Redefine is a simple routine for changing the field headings on the file definition. It is NOT the part of the program that allows you to add new fields or delete redundant ones (see SECTION 15 COPY).

8.2 Access REDEFINE by pressing F on the menu.

8.3 You may now change the field headings. You may NOT change the type of information stored there (either character, date, or arithmetic), or the length of the fields.

NB Remember that the field names used in your select files or report files, etc., should also be changed to correspond with any field names that you have changed.

SECTION 9 – MASK

9.1 This option is used for two main purposes.

1. To design user-defined screen displays that can be recalled by name and used in KEY for keying in records or amending records. Any number of screen displays may be designed and a password attached to each one, if required.
2. To attach a PROCESS file to be used during KEY. This allows calculations to take place on screen as records are typed in or amended.

This is another 'non-action' part of DMS, in that these screen layouts will not be used unless recalled by name in the KEY program.

9.1 Access this option using option G on the menu.

9.2 USING MASK

You may, at any time recall an existing MASK file for amendment, or create any number of new ones.

You will firstly be shown a blank screen on which to design the layout required. The cursor will move in any direction. Either the field names that you allocated for your file definition may be used, or completely different operator prompts. By putting in longer operator prompts you may simplify data entry, e.g. If your field name was 'COMPANY' you may prefer to use a new operator prompt of:

'Now type in the name of the person in the format of surname followed by initials' [2]

The brackets indicate how long the information can be, and the number in those brackets tells DMS which field you want the data to go into. Thus if the length of the field you want the data to go into is 20 characters, count 20 spaces between the brackets. A bleep indicates that the wrong number of spaces have been allocated on screen.

9.3 Key fields in MASK

Note that there is no need to incorporate the Key field into the MASK as this has its own position at the top of each record. This position is allocated by DMS. No field may be used more than once in a MASK file.

9.4 Work fields.

There are 26 work fields available in MASK, i.e. temporary 'holding' areas. These areas are indicated by the ↑ symbol followed by any letter from the alphabet. These may be used for two purposes:-

- A. As intermediate storage during calculations. These operate in much the same way as the temporary work areas in PROCESS.
- B. To display running totals of updates performed so far. For example, in order to display total value of orders entered, we would ask MASK to display work area A. and a processing instruction would say ↑ A= ↑ A+ ORDER VAL. When the cursor moves to this box on the screen simply hit return as you do not want to enter anything. This facility can be used to count records going onto file.

9.5 Missing out fields in MASK files.

If you have fields that you do not want to utilise you simply ignore their existence while creating a MASK file. For instance, when creating a list of new or potential clients, you may start off with only their names and addresses. Although these records will develop over the months or years of trading, initially, they need only be very short. The fields which you have no data for at first can be 'masked out' and incorporated into the MASK file in stages as information for those fields comes in.

Section 9 – Mask

9.6 Completing the file mask.

When you have designed the screen layout satisfactorily, you may create the file on disk. If the screen layout is not acceptable to DMS, the unacceptable lines will be indicated for correction. When these amendments are made, allocate a name which will be used to recall that screen layout for use in KEY.

Each MASK file can have password protection, if required. This is an eight character word, allocated as you create the MASK file. As no screen prompts are given, do record that password on paper.

9.7 Incorporating a PROCESS file to MASK.

Having designed the screen layout, you may attach a processing routine, so that processing takes place as data is keyed in. This PROCESS file must have been created and named in PROCESS, and can be recalled in MASK, and attached to the MASK file.

SECTION 10 – REPORT

10.1 This part of the system is used to produce standard reports, define, save and print letters or user defined reports, print previously defined labels.

Standard reports only require you to tell DMS which fields from the file you require to print, and the system will work out spacing, totals and report headings for you. The report may either go to the printer or to the screen.

Letters are simple one page reports where you can mix text and information from DMS files. You lay out the letter on the screen telling DMS where you want it to include data from the DMS file. This would mostly be used for mailing shots, or formatted prints where there is only one record per page.

User defined reports are more complicated and allow you to have precise control over the format of your printout. You can specify where you want page headings, how you want the bulk of the report to print, and where you want the totals.

This type of report is used where you need to be able to place information exactly on a page, where you want certain information to be printed on a new page, e.g. in a personnel print, each department is to start printing on a new page.

Labels are defined in the label option, and are printed in this part of the system.

All these reports may use select and sort files.

10.2 Access this program by selecting option H from the main menu.

10.3 Using the Report program.

When you select option H, you will be shown the following menu:

- A. Set up or amend letter.
- B. Set up or amend report.
- C. Print letter.
- D. Print report.
- E. Print standard report (to screen or printer).
- F. Print labels.

N.B. C can only be used after setting up the letter in A
D can only be used after setting up the report in B.
F can only be used after setting up the label layout in LABEL

10.4 Set up or amend letter.

10.4.1 Select option A

You can either supply the name of an existing letter file for amendment, or a new name for a new letter.

Using the normal cursor controls to format the screen you can now create or amend a letter with up to 23 lines of mixed text or information from the DMS file.

The method used to create the letter is the same as that used to create a mask in section 9.

The differences between setting up a letter and a mask are:

1. You may include the key field in the letter.
2. Fields may be included more than once.
3. Work areas and process files may not be used.

Section 10 – Report

When you are satisfied that you have laid out your letter correctly, press shift and return twice.

Any errors will be shown in the same way as when you use MASK.

If there are no errors, then the letter will be save on disk under the name you supplied.

10.5 Set up or amend report.

10.5.1 Select option B

Supply either the name of an existing report that you require to amend, or the name of a new report file to be created.

You will now be asked where you want either text or information from the DMS file to be printed on the report.

The report specification is divided into three parts:

1. Heading block – fields and text that are to appear once only at the top of each page.
2. Detail block – fields or text that are to be printed for each record that appears on the page.
3. Total block – fields and text that appear when and where requested.

The basic concept in designing the report is that you imagine that there is a page with a heading block, a detail block and a total block.

The heading block will appear once only at the top of each page, and will contain text and information that will come from the next record to be printed. DMS will change a page for two reasons, firstly if the page is full, and secondly if the contents of a field that has been nominated as a page break field have changed.

The detail block will be repeated for each record until either the page is full or the contents of a field that has been nominated as a total break have changed.

Although a detail block will probably be repeated more than once per page (because there is more than one record being printed per page), you will only define the layout once.

The positions you supply will be where the first detail block on the page will be placed.

The total block will print when the contents of a field that has been nominated as a total break have changed, and at the end of the report.

The total block can either be placed at a specific position at the bottom of the page, or it may follow the last detail block printed.

In order for page and total break fields to be used, the report must have been sorted into a corresponding sequence on those fields.

10.5.2 Defining the report.

The method of telling DMS what you want and where you wish it to print is as follows:

In the column marked FIELD either enter a field name/number/work field e.g. A. if you are entering text then leave this and the next two columns blank.

For character and date fields only, the next two columns (START and LEN) define the start position and the number of characters that you wish to have printed. These entries are not needed for numeric fields.

The next two columns (DOWN and ALONG) define the start position on the page for this text/field. This is relative to the top left corner of the page which is DOWN 1 and ALONG 1. The top line (i.e. down 1) is reserved for page numbers etc., therefore you can start at down = 2 and along = 1.

Section 10 – Report

The column marked £ should only be set to Y for a numeric field that is to be printed with a preceding pound sign.

The final column, marked TEXT should contain the actual text that is to be printed, assuming you have left the FIELD column blank. Entries in this column must be terminated with a #.

An entry of a single character followed by ## will cause DMS to print this character repeatedly from the start position supplied to the end of the line.

For each part of the report (e.g. HEADING, DETAIL, TOTAL) you will enter your specification as above.

You may have up to 12 entries in the HEADING or TOTAL block, and up to 48 in the DETAIL block, this means you will have one screen for heading and total blocks, and four screens for the detail block. Go to the next screen by pressing shift and return. Entries may be left blank to make inserting new entries easier later on.

10.5.3 How DMS formats the page.

As stated heading will always appear at the top of the page in the positions you gave.

The first detail block will also be printed in the positions you gave. Subsequent blocks will follow on (if there is enough room on the page). The gaps between detail blocks will be the same as the gap between the headings and the first detail block as specified on your definition.

Total blocks will either be printed in the specific position that you defined, or following the detail blocks of which it is the total. The gap between the last detail block and the total block is the same as the gap on your definition.

These are known as fixed or floating totals, you will be asked which you need later on.

WE STRONGLY ADVISE THAT YOU DESIGN THE REPORT ON A PIECE OF PAPER BEFORE YOU START.

10.5.4 Overall print options.

Having defined the report layout, you will now be asked to supply a number of options to apply to the report as a whole, these are as follows:

Use dates and page numbers? – Y or N depending on your needs.

Pause between pages? – reply N for continuous printing or Y for individual sheets.

Floating totals – If you reply Y to this question then any totals will be printed immediately after the detail blocks. A reply of N will cause the totals to print in a fixed position on the page.

Replace zeros with blanks – reply Y or N

10.5.5 Total and page breaks.

For sophisticated reports DMS needs to know when to change pages and when to print totals.

To do this fill in one or more entries under the total break or page break columns. The order that you allocate to these fields should be the same order that you specified for the sort.

When the contents of one of these records changes from one record to another a break will occur, and either a set of totals will be printed and/or a new page started.

10.5.6 Processing on a report.

If you require to do some calculations on each record before it is printed then you press Y. Supply the name of a processing file to be used.

THE CALCULATIONS WILL NOT CHANGE THE RECORD ON DISK.

Section 10 – Report

10.5.7 Test print

If you wish you can have a test print of your layout by pressing Y. If you reply Y, after the test print you will have the option to amend the report definition.

10.6 Printing letters.

Supply the name of the letter file to be used.

Supply the names of the sort and/or select files, if needed.

Answer Y or N to the question 'Pause between pages'.

While printing the letters, press H to halt the print.

10.7 Print user defined report.

Supply the name of the report file to be used.

Supply the names of the sort/select files, if needed.

While printing the report, press H to halt the print.

10.8 Print a standard report.

The file description will be displayed with a column headed 'PRINT Y/N' with all fields set to n.

Using the standard cursor controls set any field you wish to print to Y. Press shift and return to accept the screen.

Supply the names of any sorted or selected files, if needed.

Reply Y to the question 'Summary report only' if you only want to see the totals, else reply N for a normal print.

Print on screen or printer – reply S or P.

While printing the report press H to halt the printout.

10.9 Print labels

Supply the name of the label file to be used.

Supply the names of the sort/select files, if needed.

Reply Y or N to the question 'Do you want a test print'.

While printing the labels press H to halt the print.

SECTION 11 – LABEL

11.1 This part of DMS allows you to set up particular label formats. These formats can be stored on disk, named, and recalled in REPORT for printing out onto self-adhesive stationary. Selected and/or sorted files may be used.

11.2 Access LABEL by pressing option I on the menu.

11.3 When you access, LABEL you will be shown any existing label files, which may be recalled and amended, should you have changed your label stationary since creating the first layout.

Creating a new label layout.

To create a new label layout, you need to tell DMS where to start to type the labels. This would normally be in start position 1.

Depending on the length of each line of the label, you then type in the start positions of the subsequent labels. You may print onto label stationary up to 5 wide. Normally on an 80 character wide printer, using up to 30 characters for each label line, you would be able to print two labels wide. Start positions could be 1 and 41. On wider printers, three or four labels across is typical. Printers print at ten characters to the inch, so it is a simple matter to measure the start position of each label, the depth of each label, and the gaps between them.

Having worked out how many labels you can use horizontally, tell DMS how many lines to leave blank between them. Thus if the information you want to print is six lines long (perhaps name and address fields) you would want a six field label format with gaps of perhaps three fields, depending on the depth of your labels. The number of lines between labels will be the number of lines between the top of one label and the next, minus the number of lines that are to be printed on each label.

11.4 Multiple reprints

For most mailing applications you will want each label printed only once, but there may be instances where it may save a little time in the long run to do multiple copies of each label. You can print up to 50 reprints at a time. Input the required number of reprints, as instructed.

11.5 Deciding which fields you want to use.

Normally these are name and address fields, and you are required to type them in in the order in which you want them to be printed out. If you need to 'double-up', and print two fields on a label line you may, by putting the appropriate second field in, as instructed. If you do so, DMS will leave 1 space between the end of the first field and the start of the second, removing any extra spaces from the end of the first field.

11.6 Printing Labels.

This is done in REPORT by recalling the appropriate label layout and using option F to do the printout.

11.7 Hints when using labels.

1. When laying out your labels allow a blank line at the top and bottom of the label, plus a couple of blank spaces at the front of the label. This makes the lining up of the labels on the printer an easier task. On printers that use a roller feed labels will be able to slip slightly (as they invariably do!) without the print moving off the label.
2. Internal reports can be printed out using the label format should you wish to economise on paper. Label format allows you to print multiple records horizontally.

SECTION 12 – SCREEN

12.1 This option allows you to see information on screen record by record. Sorted and/or selected files may be used. SCREEN also has the facilities of KEY, in that individual records may be amended, saved, deleted etc. (but not created!)

All records are shown in order of being typed in, unless a sorted file is used. The use of a sorted file is particularly powerful here. When using a sorted file DMS will find the record which most closely matches the search key. From this point, you can 'nudge' or 'browse' through the file, with rapid retrieval of records. By using a sorted file here, you have all the facilities of KEY with fast retrieval of individual records using keys other than the key field.

12.2 Access SCREEN via option J on the menu.

12.3 You may access sorted and or selected fields for screen display. Recall them by the name given to them during SELECT or SORT.

Because SCREEN operates in much the same way as key, you may switch on Transaction logging for a record by record printout of all transactions, record additions, deletions, amendments etc.

12.4 Screen display without sorted files.

This option will display individual records for amendment, calculation, deletion etc., just as in key. The records will be shown in the order in which they are stored on the disk.

12.5 Screen display using a Sorted file.

Much more frequently you will want to use the special benefits of recalling a sorted file for use on screen. Input the appropriate SORT file name. You will be shown the date that the file was last sorted on. Because any records added since that date will not have been incorporated in that order, you may wish to do the sort again. Answer 'Y' to proceed without resorting or 'N' if you want to return to the SORT program.

The next step asks you to give a key for finding the first record. This key can be up to 5 characters in length (this is, of course, restricted by the number of characters you sorted on. If you used less than 5 characters for the sort, DMS will allow a search key of the correct length).

There is no need for this search key to match exactly with the record you want to find. SCREEN will find the one which matches most closely, and display this record on screen.

You may then browse through the file, using the < and > keys to indicate which direction the search should move in. The facilities available in KEY may be used as you browse through the records.

SECTION 13 – PROCESS

13.1 This option allows the user to set up various series of mathematical routines. Each routine is given a name, and may be recalled by that name for use in PRORUN, to give batch processing of existing records already on file. Alternatively, the process routine may be combined with a MASK file to give on-screen calculations as records are added to the file or amended. Prior to processing, files of records meeting various parameters may be produced in SELECT and recalled for use in PROCESS.

As well as the usual mathematical facilities, PROCESS also handles batch deletion of records (using a SELECT file), or batch replacements of character or date information (again using SELECT files).

Just as in the SELECT and SORT programs, PROCESS is a 'non-action' part of DMS. Processing cannot take place until PRORUN, or a MASK file with a PROCESS combined with it is used.

13.2 Access PROCESS using option K on the menu.

13.3 Setting up a routine.

You will first be offered the names of any existing process files. These may be recalled at any time for amendment, or new ones created.

You may enter up to 16 separate processing instructions. Each instruction may be up to 70 characters in length in the format:-
PRICE=COST×#2+POSTAGE

This instruction tells DMS to work out a price by multiplying the cost by 2 and adding on the postage.

Input the field name that you want the result to go into first. The easiest way to think of the = sign is to replace it mentally with 'will be'. Thus the

PRICE 'will be' COST×#2+POSTAGE.

The # symbol indicates that the number 2 is a constant (i.e. not another field on the record), and should be used whenever the process involves a constant.

If the calculation involves the use of another field, then simply type in the field name exactly as it occurs in the file definition. Note that field numbers can NOT be used here instead of field names.

13.4 OPERATION CODES AVAILABLE IN PROCESS

You may use any of the following

+	add
—	subtract
×	multiply
/	divide
↑ delete	to delete

13.5 Temporary totals in PROCESS

There are 26 temporary work areas in PROCESS which will hold temporary totals should you not want to change the data on disk. These work areas can be indicated by the use of a ↑ symbol followed by a letter of the alphabet. Each work area can be recalled time and time again for further processing, in just the same way as other fields.

e.g. ↑ A= ↑ P×TOTAL+ #2.5 + ↑ J
↑ B= ↑ A×#2+ ↑ T

All work areas are calculated to 2 decimal places.

Section 13 – Process

13.6 Batch deletion of records.

Deletion of records is achieved by the one word instruction 'delete', and of course would typically only be used with a SELECT file (e.g. all last years students, all last years sales records). All instruction lines following this will be ignored. The delete instruction will be ignored if the process file is being used with a screen mask.

13.7 Batch replacement in DMS

If you need to replace one character string with another, or one date with another. If for example, you were keeping subscription records on DMS, and you wanted to change the subscription date on all the records where payment had been received, you could use the following format.-

RENEWAL=#120981

where RENEWAL is the field name for the subscription date and 120981 is the new date to replace the previous date.

13.8 PROCESS EXAMPLE

In a personnel situation you may want to increase your salary by 15%. You could use the following format:-

$SALARY = SALARY + SALARY \times \#.15$

This means that the new salary will be the old salary with 15% of the old salary added to it.

SECTION 14 – PRORUN

14.1 This is one of the 'action' parts of DMS. Process files created during PROCESS can be executed in PRORUN.

SELECT fields may be recalled by name and used, or the whole file may be processed at a time.

14.2 Access PRORUN by going to option L on the menu.

14.3 Using PRORUN

Firstly recall the Process file you wish to use.

In the execution of the PROCESS file you may have various printouts, varying in detail from a full printout of records before and after the PROCESS file has been run, right down to no printout at all. The options are as follows:-

- A – Print each record before and after processing
- B – Print each record after processing
- C – Print only affected fields before and after processing
- D – No printout at all.

Additionally, you have the choice of printing the information to the printer or showing it on the screen. If you reply 'S' (for screen), each record will be displayed very briefly on screen as it is processed. The display time is too short to enable the use to read the screen fully, and is meant more as a confirmation that the machine is in operation and functioning!

NB After displaying processes on the screen do not be tempted to ask for a printout of the records at this stage, by recalling PRORUN. By printing out within PRORUN the records will be processed again, which will, naturally, produce an unexpected result.

Printouts can, of course be done in REPORT without fear of setting into action a processing operation.

SECTION 15 – COPY

15.1 This program can be used to input standard sequential files for the creation or update of DMS files. These files can come from the output of LINK, or from another system. There are two main uses for this:

1. To transfer data from one DMS file into another. This is usually done in order to change the file definition in some way, when the user needs to retain his existing data. Thus, should you wish to keep slightly different information from that which was allocated in the original file definition, you may use this option to transfer your data onto a file definition that is correct for your current use. Fields may be added or deleted, extended or reduced as you wish. The original data file stays intact and unaffected by the transfer.

You may also split large and unwieldy files onto several data disks, or merge information from several different data files.

2. To create/update DMS files from other systems/programs that produce a standard Commodore format sequential field.

There is also an option that allows the user to transfer data from Visicalc into DMS.

15.2 Access COPY using option M on the menu.

15.3 DMS first ask whether you wish to transfer from a Visicalc, sequential or DMS file.

15.4 Sequential file input. (The concept.)

DMS will transfer information from the sequential file to the DMS file using information you supply to match up the fields on both files. Thus if you had several data disks for clients, you could merge all the names and addresses onto one disk for mailing purposes. You may also wish to sort and/or select records which meet particular parameters prior to merging. This can be done during SELECT or SORT, and these sorted and/or selected files recalled by name. Once we have determined which records are to be transferred, we can select the appropriate fields for transfer. Imagine on our obsolete data file we have the following information.

Company
Name
Address 1
Address 2
Address 3
Type

Although we would still like to use the same names and addresses, for future purposes on our alternative file the company 'type' is not relevant. We do not need this field on our new file definition, but we would like to keep some financial information about these companies. We would create another file using CREATE, to look as follows.

Company
Name
Address 1
Address 2
Address 3
Discount
Tot. Sales
Profit etc.

Using, first LINK, and then copy will allow you to firstly transfer your original DMS file to a sequential file, and then to copy the sequential file back to the new DMS file.

15.5 Putting it into practice.

1. Create the new file definition using CREATE.
2. If you want to transfer selected and/or sorted records, go to SELECT and SORT to input the parameters.

Section 15 – Copy

3. Go to LINK and allocate the fields you wish to retain. Recall any sorted or selected files. Give the LINK file a name.
4. Run the LINK program to create the sequential file.
5. Go to COPY to perform the update of the DMS file from the sequential file.

15.6 Mathematical field transfer.

As the transfer takes place you can opt for either

Numeric data to be added to any existing data in the corresponding numeric field.

Numeric data to be subtracted from the existing data.

The new, incoming numeric data to overwrite (replace) the existing data.

N.B. Remember that you must have created the DMS file that you are updating. This data file must be on Drive 1. Remember to regard the Program disk and the data disk as a pair as one will not function without the other.

15.7 Operation of copy.

****DMS must be logged onto the DMS data file you are about to update ****

The first two options you are given asks if the input file is an ordinary sequential file, or if it's a Visicalc dif file. N.B. if you are using the output of LINK then select the first option.

Having told it this you are now asked to supply the name of the input file. This is the file that is to update the logged on DMS file and must have been created by LINK, VISICALC or some other program on the program disk in drive 0.

Note that if you are creating a new DMS file you must have used CREATE to set up the file definition and pre-extend the file.

The next screen shows all the fields on the file definition of the DMS file that you are about to update. What DMS is asking you to do is to tell it which fields on the sequential file match those on the DMS file. For VISICALC files this procedure is not required as DMS matches the column headings on the DMS screen against the DMS data file field names to determine which fields to update. Firstly tell it how many fields there are in each record on the sequential file.

Now go through the file display allocating the number of the field on your sequential file that is to update your DMS field. You don't have to have as many fields on your sequential file as are on your DMS file. If you are creating a new DMS file the fields not mentioned will be left blank/zero, if doing an update to an existing file they will be left with their original contents.

If the file you are using as input to COPY was created in LINK, then the sequence of fields on the file will be the same as you specified in the LINK run.

When you are sure that the layout is OK press SHIFT and RETURN twice.

To check that what you hope to happen will happen it is a good idea to answer y to the next question about printing the copy parameters.

The next screen is to do with what happens if DMS finds that a record that it is getting from the sequential file has the same key as a record that is already on the DMS file that you are updating.

Select the option you need, if you are creating a new DMS file then select the R option.

COPY is best left for DMS to do while you go and do something else, so there are a number of print options that will tell you what has been going on while you are away.

These messages are fairly self-explanatory, so select the one you need.

Copy will now automatically update the logged on DMS file on drive 1 with the information from the selected sequential file on drive 0.

SECTION 16 – LINK

LINK has three very major facilities.

16.1 Linking to Wordpro, Wordcraft and Visicalc.

The most popular facility, and certainly one of the simplest options in DMS, allows you to transfer selected data into Wordpro, Wordcraft, or Visicalc. Pre-sorted and/or pre-selected files may be used. e.g. You may find all the records of the people to whom you wish to write by using the SELECT option, then if you wish, sort them into order using SORT, and finally merge the appropriate parts of those records with a standard letter created in one of the Wordprocessing packages. Thus, selected parts of selected records can be merged automatically with standard letters, or transferred into Visicalc. Normally you would use the same sorted and/or selected files in LABEL to produce self-adhesive labels to match up with the letters produced.

16.2 Changing the file definition

One of the major facilities within this program is to allow users to change the layout of their file definitions whilst still retaining their existing data. There may come a time when the file definition you first used becomes obsolete or redundant. If you wish to keep different information to that allocated on the original file definition you may delete fields or add new ones. This is done by transferring the data you wish to continue using, into a sequential file using the LINK program, then copying it (using COPY), onto another file definition, newly created to match your current needs. At the same time, field lengths or types may be changed.

16.2.1 Splitting and merging files.

The same data copy routine can also allow the splitting up of large and unwieldy data files (e.g. all records A-K stay on the original disk, with L-Z on a new disk), and also the automatic merging of selected parts of records onto one disk, where data was originally kept on several data disks. The importance of this second facility is tremendous.

16.2.2 Linking with user written software.

This same option can be used to produce a sequential file from DMS which can then be used as an input to a user written program. Use with COPY.

16.3 To access LINK, select option N on the menu.

16.4 Using LINK.

The data file that you are logged into will be displayed on screen. Brackets are shown next to the field headings. Select the fields of information you want to use for the link and transfer by putting a 'y' in the appropriate brackets. When these are filled in correctly, press SHIFT and RETURN.

You may then recall a sorted file if you wish, and/or a selected one, provided you had previously created these files during SORT and SELECT.

The screen then displays the following four options relating to how you want to use the sequential file.

V = Visicalc dif file
C = Wordcraft fill file
P = Wordpro seq file
S = ordinary sequential file. (for use in COPY).

The only option requiring explanation is 'S'. This is the option you would use should you wish to change your file definition in some way, split or merge your current DMS files, or link with a user-written program. This option is to be used with COPY.

Select the option you require by pressing either V, C, P or S.

Section 16 – Link

DMS now transfers all the records into the appropriate format to be readable by the program you are linking with, and asks for a name by which to recall it. To use these link files regard them as any other ordinary fill, dif, seq or sequential file. As the file is created on the DMS program disk, this will be used as a 'data' file with the other programs.

Visicalc files will be created with the name given plus a sequence number, as each file will contain 40 records. So if you specified a name of "FRED" your Visicalc files will be called "FRED 1", "FRED 2" etc.

SECTION 17 – RESET

17.1 This option allows you to change your current DMS data file from one to another, or to change the current date as held in the machine.

17.2 To access this option press option O for RESET on the menu.

17.3 You will be shown the names of your files, and after inputting the date, asked to select the one you want to use. To do this fill in the appropriate file number, press SHIFT and RETURN and go back to the menu.

NB You must always regard the DMS program disk and the data disk as a pair. Your file names will be stored on the program disk, and your data on the data disk, so one will not work without the other.

SECTION 18 – UTILITIES

18.1 The utilities option offers several helpful 'services' within DMS

18.2 Access UTILITIES by pressing option P on the menu.

18.3 Five options are available.

F = Format new diskette.

This allows you to format a disc ready to receive DMS files. All new discs must be formatted before use, but should not be formatted again unless you want to erase everything from that disc. To format the disc, press the arrow key to format, or RUN/STOP if you decide not to lose all your existing data. File names are stored on the program disk, so these will not be erased. NB Do regard your DMS program disk and your data disk as a pair. As your file names are stored on the program disk and your data on the data disk, one will not work without the other. Both must be backed up regularly to avoid loss of data. (use 'B' for backup).

B = Backup a diskette.

This option allows you to take backup copies of either your data disks and/or your program disks. A backup of your program disc should be taken when you backup your data disk, as the two should be regarded as a working pair. Floppy disks have a limited life and backup copies should be taken regularly. Put the disk to be backed up on Drive 0 and a blank or out of date disk on Drive 1. Press the ↑ arrow key to backup, or RUN/STOP if you decide not to.

D = Directory drive 0

This option allows you to see all the file names. File names are stored on the program disk, so it is important to keep the data disk with the appropriate program disk. Redundant files can be erased using option E.

R = Rename a file.

Should a file need to be renamed, this option offers this facility. Put in the existing file name, and then the name that it is to be called in future.

E = Erase files.

This option erases files on Drive 0, including sorted, selected process files etc. You simply specify which file or files you no longer need and give the name. Check the names of the files you have on disc using option D.

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GLOSSARY OF TERMS

Arithmetic field – The type of field that holds numeric information. Information can then be calculated on, and numbers less than, greater than, in a range of may be found

Backup – To create another disc which is an exact replica of the original or 'master' disk

Character field – A character field consists of alphabetic or numeric information. A character is a single letter of the alphabet. No calculations can take place on information stored in character fields

Configure – To set up the DMS program for various disk drives and printers

Cursor – The movable square that indicates where information will be recorded on the screen

Data disk. – Data is stored information, and a data disk is the floppy disk that holds that information

Date Field – The field that holds date information in a six digit format

Digit – A single number

Dongle – The DMS activator which acts as a security device

Field – A line of information in a record

File – A collection of records

File definition – The combination of fields that make up a record

Format – To prepare the disk to receive information

Global searching – A global search finds information wherever it is in a record

Key field – The first line or field in a record

Link – The linking of DMS files with other programs such as user written software, Wordpro, Wordcraft, and Visicalc

Lower case – Not capitals

Mask – To superimpose a 'mask' over the main file definition, this gives special screen display facilities

Parameters – The criteria used for searching or sorting

Password – A combination of any eight characters which must be input before access to the file is allowed

Process – The setting up of batch processing routines to calculate, delete or replace data

Program disk – The DMS disk which is placed in drive 0

Range searching – Finds information which is in the range of various amounts

Record – A single record in a file (just as one card in a card index system is a record)

Select – To find all the records on file which meet various parameters

Glossary of Terms

Sliding string searching – The type of searching which retrieves records on parts of the information in the field, sometimes called 'window' searching

Sort – To put the records on file into either numeric, date or alphabetic order

Transaction logging – Record by record printout of all records added, amended or printed

Upper case – Capital letters